

WHAT IS CLAIMED IS:

1. A method for multi-port aggregation in a digital return path CATV system, the method comprising the steps of:

digitizing each of a plurality of return path signals;

splitting each of the plurality of return path signals into a low band and an upper band;

combining each of the plurality of low band signals to form a combined low band signal;

downconverting each of the plurality of upper band signals from an original frequency range into a new downconverted frequency range;

time division multiplexing the plurality of downconverted upper band signals with the combined low band signal to form an aggregate data stream.

2. The method of claim 1, further comprising the step of serializing the aggregate data stream.

3. The method of claim 2, further comprising the step of transmitting the serialized aggregate data stream to a receiver.

4. The method of claim 3, further comprising the step of receiving the low band signals at a digital to analog converter and outputting a single RF return stream low band signal.

5. The method of claim 3, further comprising the step of upconverting each of the plurality of upper band signals to the original frequency range of the upper band signals.
6. The method of claim 5, further comprising the step of receiving each of the plurality upper band signals at a digital to analog converter and outputting an RF return stream signal for each of the plurality of signals.
7. The method of claim 6, further comprising the step of combining the single RF return stream low band signal with each of the plurality of RF return stream signals for each of the plurality of upper band signals to form a full return band signal for each of the upper band outputs.
8. The method of claim 1, wherein parameters determining the split frequency for the low band and upper band, and an upper bound on the upper band, are programmable.
9. The method of claim 1, wherein a parameter determining sample resolution of said step of downconverting each of the plurality of upper band signals from an original frequency range into a new downconverted frequency range is programmable.

10. A system for transmitting multiple return path signals using lower data rate transmitters, the system comprising:

a converter for digitizing each of the multiple return path signals;

a processor for processing/band-splitting each of the multiple return path signals into respective low and high bands, and adding the low bands to form an aggregate low band signal;

a multiplexer for time division multiplexing the aggregate low band signal with each high band signal to form a combined data stream; and

a transmitter for transmitting the combined data stream.

11. A system according to claim 10, wherein said processor comprises a digital processor.

12. A system according to claim 10, wherein said processor comprises digital and analog components.

13. A system according to claim 10, further comprising a digital to analog converter at a receiver end to receive the low band signals and output a single RF return stream low band signal.

14. A system according to claim 10, further comprising a digital to analog converter at a receiver end to receive each of the plurality upper band signals and output an RF return stream signal for each of the plurality of signals.

15. A system according to claim 10, wherein said processor may be programmed to determine the split frequency for the low band and upper band, and an upper bound on the upper band.

16. A system according to claim 10, wherein said processor may be programmed to determine a sample resolution to downconvert each of the plurality of upper band signals from an original frequency range into a downconverted frequency range.